

**Stimulated Brillouin Scattering Mirror System, High Power Laser and Laser
Peening Method and System Using Same**

ABSTRACT

- 5 **[0078]** A laser system, such as a master oscillator/power amplifier system, comprises a gain medium and a stimulated Brillouin scattering SBS mirror system. The SBS mirror system includes an *in situ* filtered SBS medium that comprises a compound having a small negative non-linear index of refraction, such as a perfluoro compound. An SBS relay telescope having a telescope focal point includes a baffle at the telescope focal point
- 10 which blocks off angle beams. A beam splitter is placed between the SBS mirror system and the SBS relay telescope, directing a fraction of the beam to an alternate beam path for an alignment fiducial. The SBS mirror system has a collimated SBS cell and a focused SBS cell. An adjustable attenuator is placed between the collimated SBS cell and the focused SBS cell, by which pulse width of the reflected beam can be adjusted.